REMARKS

Claims 1, 3-25 and 29-37 are currently pending. Claims 1, 3-25 and 29-37 were rejected. Claims 15 and 34-37 are cancelled by present response. Claims 1, 3-6, 9-14, 16, 19-23, and 29, are amended by present response without prejudice to subsequent presentation of these claims in this or in a related application.

Claim Rejections under 35 U.S.C. §101

Claim 22 was rejected under 35 U.S.C. §101. The Examiner notes that the claim recites "A computer program embodied in a machine readable medium" and that the specification "discloses carrier wave traveling over a medium such as airwaves". The Examiner appears to be arguing that a computer program embodied in a medium such as carrier wave does not constitute statutory subject matter for purposes of 35 U.S.C. §101. The Applicants respectfully disagree with the Examiner's interpretation. However, to expedite prosecution, the Applicants have amended claim 24 to refer to a "computer program embodied in a ~~machine~~ computer readable storage medium." Applicants respectfuly submit that computer readable storage medium does not include carrier waves.

Claim Rejections under 35 U.S.C. §103

All claims were rejected for obviousness under 35 U.S.C. §103. Claims 1, 3-25, 29, and 31-37 were rejected as being unpatentable over Morgan et al., U.S. Publication No. 2003/0076849 ("Morgan") in view of Matsuo et al., U.S. Public. No 2003/0227925 ("Matsuo") and further in view of Viswanathan, U.S. Public. No. 2004/0208197 ("Viswanathan"). Claim 30 is rejected as being unpatentable over Morgan in view of Matsuo and Viswanathan, and further in view of Jenne et al., U.S. Public. No. 2003/0126223 ("Jenne").

These rejections are respectfully traversed. The Applicants respectfully submit that independent claims 1, 11, 22, and 23, and their dependent claims, are fully patentable over the references cited by the Examiner.

Morgan, the primary reference, describes a "dynamic queue allocation and de-allocation mechanism for managing traffic flowing through a switching node" (Abstract.) It states: "If a packet matches conditions of a particular QoS policy rule, a determination is made as to whether a queue associated with the matched QoS policy rule exists on an egress port that is to forward the packet. If such a queue does not exist, a determination is made as to whether enough

resources are available for dynamically creating the queue according to the QoS action parameters of the matched QoS policy rule. If the new queue may not be created because of resource limitation, queues of lower priority existing on the port are reclaimed and their resources reassigned to the new queue." (Morgan, Abstract.) Morgan does not involve virtual queues.

By contrast, various embodiments of the present application make use of virtual queues, and allocate physical queues to classifications which are related the virtual queues. For example, the Specification states: "To eliminate HOL blocking, virtual output queues (VOQs) have been proposed. In VOQ implementations, ingress ports have a bank of queues, with one queue per category. Categories may include, for example, source, destination and priority. . . . . In conventional VOQ implementations, the number of necessary queues needs to equal at least the total number of possible categories. As the number of categories increases, however, such implementations are not practical." (Specif., page 2, line 30 to page 3, line 10.) According to various embodiments, "Methods and devices are provided for the efficient allocation and deletion of virtual output queues. According to some implementations, incoming packets are classified according to a queue in which the packet (or classification information for the packet) will be stored, e.g., according to a "Q" value. " (Specif., page 4, lines 1-7.) "Only a single physical queue is allocated for each classification. When a physical queue is empty, the physical queue is preferably de-allocated and added to a "free list" of available physical queues. Accordingly, the total number of allocated physical queues preferably does not exceed the total number of classified packets." (Specif., page 4, lines 9-15.)

Further, according to various embodiments, the allocated physical queues are associated with ingress ports of a network device. For example, the Specification states "The queue may be associated with an ingress port of the network device." (Specific., page 4, line 34 to page 5, line 2.) It further indicates that the queues can be used to solve problems associated with transmission across a switching fabric between the ingress and egress ports of the same network device, again indicating that the queues in question are associated with ingress ports of the network device: "Within a single network device, packets are accepted at ingress ports, transferred across a switching fabric within the network device and received at egress ports for transmission over the next data link. If each input port maintains a single first-in, first-out ("FIFO") buffer or "queue," various difficulties can arise." (Specif., page 1, line 32 to page 2, line 4.)

Amendments have been made to the independent claims to facilitate prosecution. Support for these amendments appears throughout the Specification, for example, in the sections

quoted above. The Applicants reserve the right to further prosecute the unamended claims in this or related applications.

Independent claims 1, 11, 22, 23, have been amended to variably recite processes and mechanisms for "making a classification for [a] packet according to a virtual queue, the virtual queue configured to hold information associated with the packet", the packet received "at an ingress port of a network device"; "determining . . . whether a previously-allocated physical queue exists for the classification"; "allocating a physical queue for the classification when no previously-allocated physical queue exists for the classification"; "associating the physical queue with the ingress port"; "storing information associated with the packet in the allocated physical queue"; and "scheduling the packet for transmission between the ingress port and one of a plurality of egress ports of the network device."

Morgan makes no mention of virtual queues, much less a plurality of virtual queues at ingress ports, in any way. Furthermore, Morgan does not mention that the queues it allocates are to be associated with ingress ports. Indeed, Morgan does not mention ingress ports at all, and in fact teaches away from locating queues at ingress ports. Morgan's queues are described as being located on the egress (not ingress) ports of a network device: "If a packet matches conditions of a particular QoS policy rule, a determination is made as to whether a queue associated with the matched QoS policy rule exists *on an egress port* that is to forward the packet." (Morgan, Abstract (emphasis added).) This distinction is of importance because, according to particular embodiments of the present application, queues facilitate transmission of packets between the ingress and egress ports of the same network device.

Based on at least the above, the Applicants respectfully submit that independent claims 1, 11, 22, and 23 are patentable over the cited references, and respectfully request that the rejections of these claims be withdrawn. For similar reasons, the rejections of the claims which depend on these independent claims should also be withdrawn.

CONCLUSION

For at least the reasons stated above, the Applicants believe that all pending claims are allowable and respectfully request a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

Respectfully submitted,
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